

PROCEEDINGS
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ADDITIONAL NOTES ON FUNGOUS INSECTS.

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The following notes deal mainly with fungous insect records which have accumulated since the publication of former papers¹ along this line. In this connection it is of interest to note that W. M. Davidson records *Psyllobora taedata* LeConte,² a coccinellid as feeding during its adult and larval stages on rose and apple powdery mildew, *Sphaerotheca pannosa* Lev., and *Podosphaera oxyacanthae* De Bary. All through their larval existence, the insects under observation fed on the fungi, cutting semicircular swaths through the mycelial filaments.

Buller in his paper on "The Red Squirrel of North America as a Mycophagist"³ states that this animal "not only feeds on the seeds of fir-cones, hazel-nuts, etc., but is also an habitual mycophagist. In the late autumn it often collects fleshy fungi in large numbers for its winter supply of food, and it stores these fungi sometimes en masse in holes in tree trunks, old birds' nests, etc., and sometimes separately on the branches of certain trees." The fungi mentioned by Prof. Buller are members of the genera *Armillaria*, *Russula*, *Lactarius* and *Boletus*.

Parshley in his "Essay on the American Species of *Aradus*"⁴ mentions the following Hemiptera which appear to be associated with fungi,—*Aradus proboscideus* Walk., *Aradus debilis* Uhl., about *Cryptoporus* on *Pinus*, and *Aradus similis* Say on *Polyporus* on *Betula*.

Under date of July 26, 1921, Mr. Ryoichi Takahashi writes that he collected eighteen species of Coleoptera on *Pleurotus* sp.,

¹Proc. Biol. Soc. Wash., vol. 33, pp. 1-20; vol. 34, pp. 59-62; vol. 34, pp. 85-88.

²Ent. News, vol. xxxii, p. 83.

³Trans. Brit. Mycol. Soc., vol. vi, part iv, pp. 355-362.

⁴Trans. Amer. Ent. Soc., xlvii, p. 14.

growing on the stem of *Ulmus* sp., at Sapporo, Hokkaido, Japan. These are as follows: EROTYLIDAE, *Cyrtotriplax nipponensis* Lewis, *Triplax ainoicus* Lewis, *Eudaemonium tuberculifrons* Lewis; MELANDRYIDAE, *Penthe japonica* Mars; TENEBRIONIDAE, *Epiphalevia atriceps* Lewis, *Plesiophthalmus nigrocyaneus* Motsch., *Helops strigipennis* Mars., *Stenis insomnis* Lewis, *Lyprops* sp., NITIDULIDAE, *Strongylus ater* Hbst.; HISTERIDAE, *Hister concolor* Lewis, *Hister cadaverinus* Hoff.; SCAPHIDIIDAE, *Scaphisoma* sp.; STAPHYLINIDAE, *Philonthus cyanipennis* F., *Oxyporus nigra* Sharp, *Bolitobius simplex* Sharp, *Conurus* sp.; MYCETOPHAGIDAE, *Mycetophaga helleriana* Reitt. Evidently *Pleurotus* is a universal favorite with the Coleoptera, as in the United States we have found more species associated with *Pleurotus ostreatus* than any other member of the *Agaricaceae*.

ORDER COLEOPTERA.

Family Silphidae.

Leiodes basalis Leconte. On slime mould, Monmouth Junction, N. J., June 2.

Family Staphylinidae.

Omalium rivulare (Payk.). From *Pleurotus ostreatus*, Cincinnati, Ohio. April 23.

Philonthus cyanipennis F. Feeding on *Hygrophorus* sp., Monmouth Jc., N. J., August 6.

Philonthus blandus (Grav.). Feeding on *Russula crustosa*, Monmouth Jc., N. J., August 6.

Ontholestes cingulatus (Grav.). On *Russula crustosa*, Monmouth Jc., N. J., August 6. Predaceous.

Tachinus fimbriatus Grav. On *Collybia platyphylla*, Monmouth Jc., N. J., June 11.

Family Nitidulidae.

Stelidota geminata (Say). Feeding on *Russula crustosa*, Monmouth Jc., N. J., August 6.

Stelidota octomaculata (Say). On *Boletus* sp., Monmouth Jc., N. J., July 21.

Family Erotylidae.

Megalodacne fasciata Fab. Larvae feeding in *Polyporus lucidus*, Union, N. J., Sept. 16. Presence is detected by large amount of frass, excrement, etc., thrown out on top of fungus.

Family Tenebrionidae.

Bolitotherus cornutus (Panz.). Feeding on lower surface of *Polyporus betulinus*, Springfield, Mass. (G. W. Dimmock.) Egg capsules noted on lower surface of *Polyporus lucidus*, Union, N. J., Sept. 16.

Hoplocephala bicornis Oliv. Feeding in *Trametes suaveolens*, Stockton, N. J., April 8.

Family **Anobiidae**.

Dorcatoma dresdensis Hbst. Bred from *Fomes applanatus*, Valley Falls, N. Y., May 3, (W. A. Hoffman).

Eutylistus intermedius Lec. Bred from *Fomes applanatus*, Valley Falls, N. Y., May 5, (W. A. Hoffman).

Family **Cisidae**.

Cis cylindricus Dury. Breeding in *Trametes peckii*, Los Gatos, Cal., April, (Hartman). Breeding in *Polyporus versicolor*, Palo Alto, Cal., March, (Hartman).

Cis fuscipes Mell. Feeding in *Trametes suaveolens*, Stockton, N. J., April 8.

Cis creberrima Mell. From *Pleurotus ostreatus*, Cincinnati, Ohio, April 23, (Dury).

Cis vitula Mann. Breeding in *Trametes peckii*, Los Gatos, Cal., April, (Hartman). Breeding in *Polyporus versicolor*, Palo Alto, Cal., March 11, (Hartman).

Cis dichrous Lec. Breeding in *Trametes peckii*, Los Gatos, Cal., April (Hartman).

Enneathron thoracorne Ziegl. Breeding in *Polyporus versicolor*, Trenton, N. J., July 1.

Ceracis sallei Mell. Bred from *Fomes applanatus*, Valley Falls, N. Y., May 7, (W. A. Hoffman).

ORDER DIPTERA.

Family **Mycetophilidae**.

Lintner (10th Rept. Inj. and other Ins. N. Y., 1894; 48th Rept. N. Y. St. Mus. p. 392) mentions six species of *Mycetophilidae* as feeding on *Boletus* and *Agaricus* in Europe.

Family **Itonididae**.

Winnertzia fungicola Felt. Reared from *Lenzites saepiaria*, Plainfield, N. J., March 31.

Family **Phoridae**.

Phora agarici Lintner. Reared from *Agaricus subrufescens* Peck., Glen Cove, N. Y., (Lintner, 10th Rept. 1894, pp. 400-401).

Lintner also mentions five species of *Phora* recorded as being reared from *Agaricus* and *Lycoperdon* in Europe.

Family **Tipulidae**.

Limnobia cinctipes Say. Larvae in *Fomes* sp., Sept. 15, Gloversville, N. Y., (Alexander, Mem. 38, Cornell Univ. Agr. Exp. Sta., p. 811).

Limnobia triocellata O. S. Larvae in *Fomes* sp., Gloversville, N. Y., Sept. 15 (Alexander, Mem. 38). Larvae in *Hypomyces lactifluorum* (Schw.),

Armillaria sp., and *Clitocybe* sp., Great Falls, Va., Sept. 8, Oct. 9, (C. H. Popenoe). (Alexander Mem. 38.) Larvae in *Boletus felleus*, Bradley Hills, Md., (Alexander, Mem. 38).

Ula elegans O. S. Larva in *Fomes* sp., Gloversville, N. Y., Sept. 15 (Alexander, Mem. 38). Alexander also mentions two European species of *Limnobia* and one European species of *Ula* as occurring in polypores and agarics in Europe.

Order THYSANURA.

Papirius pini Folsom. Feeding on spores of *Amanatopsis vaginata*, *Lactarius* sp., and *Russula* sp., Monmouth Jc., N. J., July 26.

Achorutes armatus Nic. Feeding on spores of *Russula crustosa*, Monmouth Jc., N. J., August 6.

Order THYSANOPTERA.

Trichothrips ulmi Fab. Found during summer and winter in many parts of New Jersey, under bark of decayed trees and in and on various polypores such as *Polyporus versicolor*, *P. gilvus*, *P. betulinus*, *P. hirsutus*, *Lenzites betulina* and *Fomes applanatus*. At Monmouth Junction, N. J., July 21, various stages were observed feeding on the ends of the tubes of *Fomes lobatus*. They were feeding in groups and had kept the tubes from growing. The surrounding tubes which had not been eaten grew normally and this resulted in slight depressions wherever the insects had congregated and fed for any length of time. At the same place on July 21, specimens were observed feeding on the mycelial filaments on the upper surface of young sporophores of *Stereum fasciatum*.

ACARINA.

Family Oribatidae.

Galumna depressa Banks. In *Hydnum* sp., Monmouth Jc., N. J., July 21.

Carabodes nigra Banks. In *Hydnum* sp., Monmouth Jc., N. J., July 21.

Family Tyroglyphidae.

Tyroglyphus lintneri Osborn. Attacking mushrooms, Jamesport, L. I., N. Y. (Lintner, 48th Rept. N. Y. St. Mus. p. 392). In this report mention is made of *Rhizoglyphus rostroerratus* being destructive to *Agaricus campestris* grown in the vicinity of Paris, France.

Tyroglyphus heteromorphus Felt. Observed feeding on a black smutty fungus which developed upon decaying carnation roots. Black spores were observed within their semitransparent bodies (Felt, 11th Rept. N. Y., 1896, p. 254).

Dr. Nathan Banks writes that there are a great many species of *Oribatidae* and a number live in fungi, the *Carabodes* usually in hard fungi.

We are indebted to Dr. Nathan Banks for identifying the *Oribatidae*, to Mr. C. A. Frost for miscellaneous indentifications in the Coleoptera, to Mr. Chas. Dury for his help with the *Cisidae*, to Mr. Chas. Macnamara for determining the springtails and to Mr. A. C. Morgan who identified *Trichothrips ulmi* Fabr.

